

REMARKS

Reconsideration and withdrawal of the rejections set forth in the Office Action are respectfully requested in view of this amendment and the following reasons. Claims 1-46 and 48-55 are pending in this application. Claim 47 was previously canceled by the Applicants without prejudice or disclaimer to the content therein, for the sole purpose of advancing prosecution. Claims 11-17, 36-41, 44, and 49-51 were previously withdrawn from further consideration by the Examiner. Claims 1-10, 18-35, 42, 43, 45-48 and 52-55 have been rejected.

Applicants, by amending or canceling any claims, make no admission as to the validity of any rejection made by the Examiner against any of these claims. Applicants reserve the right to reassert the original claim scope of any claim, even if amended or canceled, in a continuing application.

Claims 1 and 55 have been amended to further define the position of the diaphragm relative to the housing. Claims 11, 17, 23, 38, 48 and 50 have been amended to correct typographical errors. Support for the claims as amended, appears throughout the specification and claims as originally filed. For example, at least in the original specification, page 3, lines 9-12, 13-15 and 24-28 (corresponding to paragraphs [0011], [0012] and [0014] of the printed publication); specification page 7, line 29 to page 8, line 3 (corresponding to publication paragraph [0050]); specification page 8, lines 20-26 (corresponding to publication paragraph [0053]); specification page 13, lines 13-15 (corresponding to publication paragraph [0079]); specification page 14, lines 18-24 (corresponding to publication paragraph [0085]); specification page 16, lines 8-10 (corresponding to the first sentence of publication paragraph

[0094]); and figures 1B, 1C, 5B, 5C, 6B, 6C, 7A, 7B, 8A and 8B. It is respectfully submitted that the amendments do not introduce any new matter within the meaning of 35 U.S.C. §132.

In view of the following, further and favorable consideration is respectfully requested.

I. Interview Summary

Applicants thank Examiner Steven M. CERNOCH and Primary Examiner Dinh Q. NGUYEN for the courtesies extended to Applicants' Representatives during the personal Interview conducted March 17, 2010 to discuss the claimed subject matter in view of the Examiner rejections and art cited in the Office Action mailed November 3, 2009.

Applicants' Representatives provided the Examiner(s) with a copy of proposed amendments and explained the amendments relative to the previously presented claims. As indicated by the Examiner in the Examiner Interview Summary mailed March 23, 2010, discussion focused on amendments "to further detail both the position of the diaphragm in the housing and the 'radial support' keeping it from tilting or turning. [Applicants' Representative(s) and the Examiner(s) a]lso discussed ... the need to define a direction" [in the interest of differentiating the claimed subject matter from the prior art] for the sliding displacement of the stem member. Out of the various proposals for claim amendments discussed by Applicants' Representative(s) and the Examiners, the Examiners gave positive indications regarding the phrasing "the stem member being radially supported to enable only sliding displacement in an axial direction without any tilt or rotation" and "wherein the diaphragm is fully contained within the housing in both the first and second positions." With respect to the former phrase, Primary Examiner NGUYEN further suggested that Applicants

"need to define what is [the] axial direction, [i.e.] 'primary direction of the flow' or 'longitudinal direction of the housing'," and agreed with Applicants' assertion that the phrase "without any tilt or rotation" reinforced with "sliding displacement in an axial direction" precludes transverse and longitudinal "wobbling, tilting or turning." The Examiners indicated that "any amendments may require further search and consideration."

Accordingly, Applicants submit this Response pursuant to a Request for Continued Examination, amending the claims, as proposed and discussed with the Examiner(s). *Applicants respectfully request that Applicants' Representatives be contacted should any issues remain unresolved, i.e. preventing the application from allowance.*

II. At pages 2-6 of the Office Action, claims 1-9, 24-30, 32-35, 42, 43, 47, 48, 52, 53 and 55 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Bailey (U.S. Patent No. 4,919,332).

The Examiner rejected claims 1-9, 24-30, 32-35, 42, 43, 47, 48, 52, 53 and 55 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,919,332 to "Bailey et al." [*sic*] (hereinafter referred to as "Bailey").

Applicants respectfully traverse the rejections since all of the features of the presently claimed subject matter are not disclosed by the cited reference. Claims 2-9, 24-30, 32-35, 42, 43, 47, 48, 52 and 53 (and claims 10-23, 31, 36-41, 44-46, 19-51 and 54) depend from claim 1. By this Response and Amendment, claims 2-9, 24-30, 32-35, 42, 43, 47, 48, 52 and 53 (and claims 10-23, 31, 36-41, 44-46, 19-51 and 54) have been amended or depend from amended claims and as amended, the rejections thereto are respectfully traversed.

For a reference to anticipate an invention, all of the elements of that invention must be

present in the reference. The test for anticipation under section 102 is whether each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP §2131.

Overview

Independent claim 1 recites [a] sprinkler comprising:

- a housing fitted with an inlet port connectable to a water supply line and extending into an inlet chamber;

- a hollow stem member with an inlet end thereof being in flow communication with said inlet chamber and an outlet end thereof being in flow communication with an irrigation head; and

- a diaphragm seal sealingly fixed at peripheral boundaries thereof to the housing and sealingly articulated to the stem member and supporting the stem member in an essentially upright position,

- said diaphragm being deformable between a first position in which the irrigation head is retracted within the housing and a second position in which the irrigation head projects from the housing, *the stem member being radially supported to enable only sliding displacement in an axial direction from the inlet chamber towards the irrigation head without any tilt or rotation,*

- wherein the diaphragm is fully contained within the housing in both the first and second positions.*

(emphases added).

Independent claim 55 recites [a] sprinkler comprising a housing fitted with an inlet port extending into an inlet chamber and comprising:

- a beveled diaphragm seal having a first face thereof exposed to pressure within the inlet chamber and a second face exposed to atmospheric pressure; and

- a stem member articulated to said beveled diaphragm seal and having an inlet end thereof extending into the inlet chamber and having an outlet end articulated to an irrigation head,

- wherein the diaphragm seal is normally retained in a first toggle position where the sprinkler head is concealed within the housing, and

wherein water pressure within the inlet chamber deforms the beveled diaphragm seal into a second toggle position where the sprinkler head axially displaces and projects from the housing, *the stem member being radially supported to enable only sliding displacement in an axial direction from the inlet chamber towards the irrigation head without any tilt or rotation,*
wherein the diaphragm is fully contained within the housing in both the first and second toggle positions.

(emphases added).

Bailey describes “[a] diaphragm type riser for an irrigation sprinkler including a coil compression spring that acts against the diaphragm for urging the riser to its retracted position.” See Bailey Abstract.

Rejection of claims 1-9, 24-30, 32-35, 42, 43, 47, 48, 52, 53 and 55

In the Office Action, the Examiner asserts that “[r]e claim 1, Bailey et al. shows a sprinkler... said diaphragm being deformable between a first position in which the irrigation head is retracted within the housing and a second position in which the irrigation head projects from the housing (col. 5, lines 8-16), the housing is formed with a radial support (Fig. 1, 21) to facilitate only axial displacement (Fig. 2) of the stem member (8).” See Office Action page 2.

Applicants respectfully note that the Examiner’s assertions are relative to the previously presented claims only. Accordingly, the above-discussed amendments to the claims, incorporating subject matter *from the original specification and figures* into independent claim 1 were not considered at the time of the asserted rejections.

Bailey seems to describe an “irrigation sprinkler 1 “in which the “sprinkler head 12” is maintained relative to a “flexible diaphragm 16,” between a retracted and an extended

position, but in an *uncontrolled* manner. Applicants refer to Bailey col. 5, lines 8-16 (cited by the Examiner) as supporting that the position of the diaphragm and consequently, of the sprinkler head, is *entirely dependent* on the “fluid pressure increase[ing] forcing the diaphragm **16** to be deformed. When the fluid pressure has increased to a sufficient extent such that the restraining force of the spring **19** is overcome, the diaphragm **16** becomes reformed.” Applicants respectfully note that a spring is known to torque and twist, and especially so in the absence of any *structural support* as seen in the figures of Bailey. Thus, Applicants respectfully submit that Bailey does not teach, suggest or disclose at least the claimed features of “the stem member being radially supported to enable only sliding displacement in an axial direction from the inlet chamber towards the irrigation head without any tilt or rotation” as claimed.

Furthermore, Bailey shows the flexible diaphragm in two positions – internal *and* external to the housing **2**. Thus, as agreed to by the Examiner(s) during the personal Interview, Bailey also fails to teach, *inter alia*, the claimed feature “wherein the diaphragm is fully contained within the housing in both the first and second positions.”

Accordingly, Applicants respectfully submit that the pending claims are not anticipated by Bailey. For at least the reason that independent claims 1 and 55 are patentably distinguishable from the cited art reference, it is also respectfully submitted that dependent claims 2-9, 24-30, 32-35, 42, 43, 47, 48, 52 and 53 (and claims 10-23, 31, 36-41, 44-46, 19-51 and 54) are similarly novel and non-anticipated over the cited art. Additionally, Applicants respectfully submit that these claims recite additional features which are *per se* novel.

Applicants respectfully request reconsideration and withdrawal of the rejections of

claims 1-9, 24-30, 32-35, 42, 46-49, 52, 53 and 56-62. Applicants request an early indication of allowability.

III. At pages 7-9 of the Office Action, the Examiner has rejected claims 18-22 under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Lawson (US Patent No. 6,186,413).

The Examiner has rejected claims 18-22 under 35 U.S.C. §103(a) as being unpatentable over Bailey et al. in view of U.S. Patent No. 6,186,413 to "Lawson et al. "(hereinafter referred to as "Lawson").

In view of the following, the remaining rejections are respectfully traversed. To establish a *prima facie* case of obviousness, the Examiner must establish: (1) some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See *Dystar Textilfarben GMBH v. C. H. Patrick*, 464 F.3d 1356 (Fed. Cir. 2006). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. *Id.* at 1366.

Overview

Independent claim 1 recites [a] sprinkler comprising:

a housing fitted with an inlet port connectable to a water supply line and extending into an inlet chamber;

a hollow stem member with an inlet end thereof being in flow communication with said inlet chamber and an outlet end thereof being in flow communication with an irrigation head; and

a diaphragm seal sealingly fixed at peripheral boundaries thereof to the housing and sealingly articulated to the stem member and supporting the stem member in an essentially upright position,

said diaphragm being deformable between a first position in which the irrigation head is retracted within the housing and a second position in which the irrigation head projects from the housing, *the stem member being radially supported to enable only sliding displacement in an axial direction from the inlet chamber towards the irrigation head without any tilt or rotation,*

wherein the diaphragm is fully contained within the housing in both the first and second positions.

(emphases added).

Lawson describes that “[a]n improved inlet control valve is provided for controlling water inflow to an irrigation sprinkler, wherein the inlet control valve exhibits improved tolerance to passage of small grit and debris. The inlet control valve includes a valve member normally engaging a valve seat to prevent water inflow to the irrigation sprinkler, and adapted for movement to a modulated open position to permit water inflow to the sprinkler at a regulated pressure. The valve member carries a flow restrictor disposed upstream from the valve seat to produce, when the valve member is in the open position, a first pressure drop which cooperates with a second pressure drop between the valve seat and valve member to regulate the water inflow pressure. The inclusion of the upstream flow restrictor and the associated first pressure drop effectively reduces the magnitude of the second pressure drop across the valve seat and thereby permits the valve member to open with an increased clearance relative to the valve seat. Such increased clearance enhances flush flow passage of grit and debris past the valve seat, with reduced risk of particulate entrapment between the

valve member and valve seat.” See Lawson Abstract.

Rejection of claims 18-22

Claims 18-22 depend from claim 1, discussed above in Section II. Applicants reference and incorporate where appropriate, the discussions of Sections II above.

Applicants respectfully submit that Lawson fails to remedy the deficiencies of Bailey discussed above in Section II. Lawson also fails to teach or suggest, *inter alia*, “the stem member being radially supported to enable only sliding displacement in an axial direction from the inlet chamber towards the irrigation head without any tilt or rotation, wherein the diaphragm is fully contained within the housing in both the first and second positions,” as recited in the present claims. Applicants respectfully note that the Examiner has applied Lawson to address the admitted deficiency of Bailey “not show[ing] wherein the inlet port is fitted with a filter... wherein the inlet chamber is fitted with a flow control assembly... does not show wherein the flow control assembly comprises a flexible membrane...” and further features of the flow control assembly and flexible membrane, and not to address the deficient radial support and diaphragm features. See pages 7-9 of the Office Action.

In view of the foregoing, Applicants respectfully submit that nothing in the cited art references renders the presently claimed subject matter obvious within the meaning of 35 U.S.C. §103(a). Therefore, Applicants respectfully submit that claim 1 is non-obvious, novel and patentable over the cited prior art, an indication of which is kindly requested. Accordingly, Applicants submit that the dependent claims, including claims 18-22, are patentable at least by virtue of their dependency from patentable claim 1. No *prima facie* rejection under 35

U.S.C. 103(a) can be made against these claims and Applicants request an indication of such. Notwithstanding the above, it is respectfully submitted that the dependent claims also have features which are novel, unobvious and patentable *per se*. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection of claims 18-22.

IV. At pages 9-10 of the Office Action, the Examiner has rejected claims 10, 23 and 31 under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Mehoudar (US Patent No. 6,000,634).

The Examiner has rejected claims 10, 23 and 31 under 35 U.S.C. §103(a) as being unpatentable over Bailey in view of U.S. Patent No. 6,000,634 to "Mehoudar et al." [*sic*] (hereinafter referred to as "Mehoudar").

A brief outline of the relevant authority is set forth above in Section III. Claims 10, 23 and 31 depend from claim 1, discussed above in Section II. Applicants reference and incorporate where appropriate, the discussions of Sections II and III above.

Mehoudar describes "[a]n irrigation sprinkler having a tubular housing having an inlet and adapted to be coupled to a water supply source and an outlet and in which is located an outlet nozzle including a sprinkler outlet. The housing accommodates flow control means coupled at one end to said inlet end and having an outlet which communicates with and is spaced from the sprinkler outlet by a region defined within the housing and constituting an hydraulic quiet zone for ensuring that water flow arrives at the spray outlet with substantially symmetrical distribution and with minimal turbulence." See Mehoudar Abstract.

It is submitted that, with respect to the pending claims, a proper case of *prima facie* obviousness has not been established because, whether taken alone or together, none of the

cited references teach or suggest all the limitations of the claims as required by *In re Wilson*. In view of the following, Applicants respectfully traverse this rejection.

As discussed above in Section II, Bailey fails to teach or suggest each and every element of the claims. Applicants respectfully submit that the Examiner's assertions regarding features of claims 10, 23 and 31 fail to remedy the deficiencies of Bailey discussed above with respect to claim 1. Mehoudar also fails to teach or suggest, *inter alia*, "the stem member being radially supported to enable only sliding displacement in an axial direction from the inlet chamber towards the irrigation head without any tilt or rotation, wherein the diaphragm is fully contained within the housing in both the first and second positions," as recited in the present claims. Applicants respectfully note that the Examiner has applied Mehoudar to address the admitted deficiencies of Bailey "not show[ing] wherein the sprinkler head is formed with an axial boss rotatably received within a corresponding bushing receptacle formed at a top of a bridge member articulated to the stem member" and "not show[ing] fitted with a differential pressure control assembly comprising a differential pressure membrane..." and not to address the deficient radial support and diaphragm features. See pages 9-10 of the Office Action.

In view of the foregoing, Applicants respectfully submit that nothing in the cited art references renders the presently claimed subject matter obvious within the meaning of 35 U.S.C. §103(a). Therefore, Applicants respectfully submit that claims 10, 23 and 31 are non-obvious, novel and patentable over the cited prior art, an indication of which is kindly requested. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection of claims 10, 23 and 31.

V. At pages 10-11 of the Office Action, the Examiner has rejected claim 45 under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of McKenzie et al. (US Patent Application Publication No. 2002/0153432).

The Examiner has rejected claim 45 under 35 U.S.C. §103(a) as being unpatentable over Bailey et al. in view of U.S. Patent Application Publication No. 2002/0143432 to McKenzie et al. (hereinafter referred to as "McKenzie et al.").

A brief outline of the relevant authority is set forth above in Section III. It is submitted that, with respect to the pending claims, a proper case of *prima facie* obviousness has not been established because, whether taken alone or together, none of the cited references teach or suggest all the limitations of the claims as required by *In re Wilson*. In view of the following, Applicants respectfully traverse this rejection.

Claim 45 depends from claim 1, discussed above in Section II. Applicants reference and incorporate where appropriate, the discussions of Sections II and III above.

McKenzie et al. describes "[a] rotary sprinkler having an adjustable arc segment whose angular extent and absolute direction relative to the ground are represented by an arc indicator, which arc indicator may comprise a band whose visible length represents the angular extent and whose position on the sprinkler points to the direction. The sprinkler may have the arc segment adjusted by a movable arc limit stop that is coupled to a toggle member only at drive reversal, and the sprinkler may be converted to full circle operation by raising the arc limit stop relative to a cooperating trip tab. A buckling spring assembly used to shift the drive comprises a compression spring held between two spaced pivot members, and the drive can be built in continuous and intermittent drive versions by replacing a few normal rotary gears with mutilated gears. A friction clutch having asymmetric teeth for smooth operation

prevents damage to the drive during forced nozzle rotation. A nozzle assembly includes a pivotal nozzle that carries a radius adjustment screw with the head of the screw received on top a flexible portion of a top cover, which top cover has laser etched indicia relating to various adjustments of the sprinkler. A flow shut off valve includes stream straightening vanes and a collar may be used to support the sprinkler on a stake or post for above ground installation." See McKenzie et al. Abstract.

Applicants respectfully submit that McKenzie et al. fails to remedy the deficiencies of Bailey discussed above. McKenzie et al. also fails to teach or suggest, *inter alia*, "the stem member being radially supported to enable only sliding displacement in an axial direction from the inlet chamber towards the irrigation head without any tilt or rotation, wherein the diaphragm is fully contained within the housing in both the first and second positions," as recited in the present claims. Applicants respectfully note that the Examiner has applied McKenzie et al. to address the admitted deficiency of Bailey "not show[ing] wherein the stem member is fitted, adjacent the outlet end thereof..." and not to address the deficient radial support and diaphragm features. See page 10 of the Office Action.

In view of the foregoing, Applicants respectfully submit that nothing in the cited art references renders the presently claimed subject matter obvious within the meaning of 35 U.S.C. §103(a). Therefore, Applicants respectfully submit that claim 1 is non-obvious, novel and patentable over the cited prior art, an indication of which is kindly requested. Accordingly, Applicants submit that the dependent claims (including claim 45) are patentable at least by virtue of their dependency from patentable claim 1. No *prima facie* rejection under 35 U.S.C. 103(a) can be made against these claims and Applicants request an indication of such.

Notwithstanding the above, it is respectfully submitted that the dependent claims also have features which are novel, unobvious and patentable *per se*. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection of claim 45.

VI. At page 11 of the Office Action, the Examiner has rejected claim 54 under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Bethea (US Patent No. 6,340,059).

The Examiner has rejected claim 54 under 35 U.S.C. §103(a) as being unpatentable over Bailey et al. in view of U.S. Patent No. 6,340,059 to "Bethea et al. " [*sic*] (hereinafter referred to as "Bethea").

A brief outline of the relevant authority is set forth above in Section III. It is submitted that, with respect to the pending claims, a proper case of *prima facie* obviousness has not been established because, whether taken alone or together, none of the cited references teach or suggest all the limitations of the claims as required by *In re Wilson*. In view of the following, Applicants respectfully traverse this rejection.

Claim 54 depends from claim 1, discussed above in Section II. Applicants reference and incorporate where appropriate, the discussions of Sections II and III above.

Bethea describes "[a] sprinkler head mounting assembly for attaching a sprinkler head to a fluid distribution pipe, wherein the sprinkler head mounting assembly comprises a sprinkler head stem connected to the sprinkler head, a flange connected to the sprinkler head stem, a first clamp portion designed to fit around a section of the peripheral surface of the pipe and to engage the flange to affix the sprinkler head to an opening in the pipe, and a second clamp portion designed to fit around the section of the peripheral surface of the pipe

that is not covered by the first clamp portion, wherein the second clamp portion designed to engage the first clamp portion to form a substantially secure connection about the pipe.” See Bethea Abstract.

Applicants respectfully submit that Bethea fails to remedy the deficiencies of Bailey discussed above. Bethea also fails to teach or suggest, *inter alia*, “the stem member being radially supported to enable only sliding displacement in an axial direction from the inlet chamber towards the irrigation head without any tilt or rotation, wherein the diaphragm is fully contained within the housing in both the first and second positions,” as recited in the present claims. Applicants respectfully note that the Examiner has applied Bethea to address the admitted deficiency of Bailey “not show[ing] wherein a hook is provided for suspension of the sprinkler an upright position or at inverted position...” and not to address the deficient radial support and diaphragm features. See page 11 of the Office Action.

In view of the foregoing, Applicants respectfully submit that nothing in the cited art references renders the presently claimed subject matter obvious within the meaning of 35 U.S.C. §103(a). Therefore, Applicants respectfully submit that claim 1 is non-obvious, novel and patentable over the cited prior art, an indication of which is kindly requested. Accordingly, Applicants submit that the dependent claims (including claim 54) are patentable at least by virtue of their dependency from patentable claim 1. No *prima facie* rejection under 35 U.S.C. 103(a) can be made against these claims and Applicants request an indication of such. Notwithstanding the above, it is respectfully submitted that the dependent claims also have features which are novel, unobvious and patentable *per se*. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection of claim 54.

CONCLUSION

Applicants assert that the claims are in condition for immediate allowance and early notice to that effect is earnestly solicited. Should the Examiner deem that any further action by Applicants' undersigned representative is desirable and/or necessary, the Examiner is invited to telephone the undersigned at the number set forth below.

In the event this paper is not timely filed, Applicants hereby petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,

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APRIL 2, 2010

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